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controlling a controller to control an initialization starts timing of the image sensing unit and an irradiation instruction timing for an irradiating unit adapted for irradiating an electromagnetic wave, based on an initialization period of the image sensing unit and an irradiation delay period of the irradiating unit.

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**REMARKS**

**I. Status of the Claims**

Claims 37-56 are currently pending in this application. By this Amendment, claims 37-56 have been amended. Claims 57-60 have been newly added. Entry of this amendment before examination on the merits is respectfully requested. No new matter has been introduced by this amendment. Upon entry of this Amendment, claims 37-60 would be pending.

To assist the Examiner, attached to this Amendment is an "Attachment" that shows the amendments made to the claims 37-56 by bracketing the text that has been deleted and underlining the text that has been added.

In the event that a telephone conference would facilitate examination in any way, the Examiner is invited to contact the undersigned representative at the number provided.

PATENT  
Serial No. 09/820,575

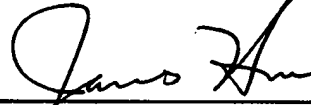
Docket No. 1232-4697

**AUTHORIZATION**

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4503, Order No. 1232-4697. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4503, Order No. 1232-4697. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Akira HIRAI

Group Art Unit: 2882

Serial No.: 09/820,575

Examiner: T. BARBER

Filed: March 29, 2001

For: IMAGING APPARATUS, IMAGING SYSTEM, CONTROL METHOD OF IMAGING APPARATUS, AND STORAGE MEDIUM WITH TIMING CONTROL FUNCTIONALITY (as amended)

**ATTACHMENT**

Amendments made to the claims 37-56 herein are indicated in this attachment by bracketing the text that has been deleted and underlining the text that has been added.

**IN THE CLAIMS:**

Please note the following changes to claims 37-56:

37. (Amended) An imaging apparatus [having a function for irradiating an electromagnetic wave to a subject by an irradiating unit that starts an accumulation of an energy for irradiation after it has received a permission signal which permits the irradiation and sensing the electromagnetic wave reflected by the subject by an image sensing unit,] comprising:

an image sensing unit adapted for sensing an electromagnetic wave image of a subject; and

a controller [that generates a signal] adapted for generating a first signal for permitting an irradiating unit to irradiate an electromagnetic wave and a second signal for initializing said image sensing unit, so as to overlap a first period and a second period,

wherein the first period is an interval between a timing when [a] the first signal[, which permits said irradiating unit to irradiate the electromagnetic wave,] is outputted from said

controller and a timing when the electromagnetic wave is outputted from said irradiating unit,  
and

wherein the second period is an interval between a timing when [a] the second signal[, which initializes said images sensing unit,] is outputted from said controller and a timing when [an] the initialization of said image sensing unit has been completed.

38. (Amended) [The] An apparatus according to claim 37, wherein said controller controls so that one [signal] of the first signal and the second signal starts after the other [signal] has started and before it has stopped.

39. (Amended) [The] An apparatus according to claim 37, wherein said image sensing unit has a photo-electric conversion device which outputs a signal in accordance with [the] an electromagnetic wave and the second period is an interval between a timing when [a] the second signal, [which initializes] for initializing said photo-electric conversion device, is outputted from said controller and a timing when [an] the initialization of said photo-electric conversion device has been completed.

40. (Amended) [The] An apparatus according to claim 39, wherein the second period is an interval for a [pre-readout] pre-discharge of said photo-electric conversion device.

41. (Amended) [The] An apparatus according to claim 37, wherein said image sensing unit has a grid which absorbs scattered rays from the subject, and said controller generates a third signal for driving said grid so as to overlap the first, [and] the second and a third

period, wherein the third period is an interval between a timing when [a second signal, which initializes said photo-electric conversion device and said grid,] the third signal is outputted from said controller and a timing when [an] the initialization of [said photo-electric conversion device and] said grid has been completed.

42. (Amended) [The] An apparatus according to claim 41, wherein the [second period is an interval between a timing when the second signal has outputted and a timing when said grid has arrived at an irradiation center with a predetermined speed] initialization of said grid is that a position and a moving speed of said grid should reach a target.

43. (Amended) [The] An apparatus according to claim 37, wherein said image sensing unit has a photo-electric conversion device which outputs a signal in accordance with [the] an electromagnetic wave and a grid which absorbs scattered rays from the subject, and said controller generates a third signal for driving said grid so as to overlap the first, the second and a third period, wherein the third period is an interval between a timing when [a second] the third signal[, which initializes said photo-electric conversion device and said grid,] is outputted from said controller and a timing when [an] the initialization of [said photo-electric conversion device and] said grid has been completed.

44. (Amended) [The] An apparatus according to claim 37, wherein said controller generates the first signal so that an irradiation of the electromagnetic wave starts at a timing when a fourth [third] period is elapsed after said controller has received a [third] fourth

signal which instructs a start of [photographing, and the third period is] imaging, the fourth period being the longer one of the first [period] and [the] second period.

45. (Amended) [The] An apparatus according to claim [37]41, wherein said [image sensing unit has a photo-electric conversion device which outputs a signal in accordance with the electromagnetic wave and a grid which absorbs scattered rays from the subject, and wherein said] controller generates the first signal so that an irradiation of the electromagnetic wave starts at timing when a [third] fourth period is elapsed after said controller has received a [third] fourth signal which instructs a start of [photographing, and the third period is the longer] imaging, the fourth period being the longest one of the first, [period and the] second and third period.

46. (Amended) An imaging system [in which a plurality of devices are communicably connected, wherein at least one of the plurality of devices has a function of an imaging apparatus] comprising:

an irradiating unit [that irradiates] adapted for irradiating an electromagnetic wave [to a subject and starts an accumulation of an energy for irradiation after it has received a permission signal which permits the irradiation];

an image sensing unit [that senses] adapted for sensing an [the] electromagnetic wave [reflected by the subject] image of a subject using the electromagnetic wave; and

a controller [that generates ] adapted for generating a first signal for permitting said irradiating unit to irradiate the electromagnetic wave and a second signal for initializing said image sensing unit, so as to overlap a first period and a second period,

wherein the first period is an interval between a timing when [a] the first signal[, which permits said irradiating unit to irradiate the electromagnetic wave,] is outputted from said controller and a timing when the electromagnetic wave is outputted from said irradiating unit, and

wherein the second period is an interval between a timing when [a] the second signal[, which initializes said image sensing unit,] is outputted from said controller and a timing when [an] the initialization of said image sensing unit has been completed.

47. (Amended) A [control] method adapted to [of] an imaging apparatus [having a function for irradiating an electromagnetic wave to a subject by an irradiating unit that starts an accumulation of an energy for irradiation after it has received a permission signal which permits the irradiation and sensing the electromagnetic wave reflected by the subject by] including an image sensing unit adapted for sensing an electromagnetic wave image of a subject, comprising [the] a step of:

controlling a controller to generate a first signal for permitting an irradiating unit to irradiate an electromagnetic wave and a second signal for initializing the image sensing unit, so as to overlap a first period and a second period,

wherein the first period is an interval between a timing when [a] the first signal[, which permits said irradiating unit to irradiate the electromagnetic wave,] is outputted from [said] the controller and a timing when the electromagnetic wave is outputted from [said] the irradiating unit, and

wherein the second period is an interval between a timing when [a] the second signal[, which initializes said image sensing unit,] is outputted from [said] the controller and a timing when [an] the initialization of [said images] the image sensing unit has been completed.

48. (Amended) [The] A method according to claim 47, wherein in said controlling step, one [signal] of the first signal and the second signal is started after the other [signal] has started and before it has stopped.

49. (Amended) [The] A method according to claim 47, wherein [said] the image sensing unit has a photo-electric conversion device which outputs a signal in accordance with [the] an electromagnetic wave and the second period is an interval between a timing when [a] the second signal, [which initializes said] for initializing the photo-electric conversion device, is outputted from [said] the controller and a timing when [an] the initialization of [said] the photo-electric conversion device has been completed.

50. (Amended) [The] A method according to claim 49, wherein the second period is an interval for a [pre-readout] pre-discharge of [said] the photo-electric conversion device.

51. (Amended) [The] A method according to claim 47, wherein [said] the image sensing unit has a grid which absorbs scattered rays from the subject, and said controlling step includes controlling the controller to generate a third signal for driving the grid so as to overlap the first, [and] the second and a third period, wherein the third period is an interval



between a timing when [a second] the third signal[, which initializes said photo-electric conversion device and said grid,] is outputted from [said] the controller and a timing when an initialization of [said photo-electric conversion device and said] the grid has been completed.

52. (Amended) [The] A method according to claim 51, wherein the [second period is an interval between a timing when the second signal has been outputted and a timing when said grid has arrived at an irradiation center with a predetermined speed] initialization of the grid is that a position and a moving speed of the grid should reach a target.

53. (Amended) [The] A method according to claim 47, wherein [said] the image sensing unit has a photo-electric conversion device which outputs a signal in accordance with [the] an electromagnetic wave and a grid which absorbs scattered rays from the subject, and said controlling step includes controlling the controller to generate a third signal for driving the grid so as to overlap the first, the second and a third period, wherein the third period is an interval between a timing when the third signal [the second period is an interval between a timing when a second signal, which initializes said photo-electric conversion device and said grid,] is outputted from [said] the controller and a timing when an initialization of [said photo-electric conversion device and] said grid has been completed.

54. (Amended) [The] A method according to claim 47, wherein in said controlling step, the first signal is generated so that an irradiation of the electromagnetic wave starts at a timing when a [third] fourth period is elapsed after [said] the controller has received a

[third] fourth signal which instructs a start of [photographing, and the third period is] imaging, the fourth period being the longer one of the first [period] and [the] second period.

55. (Amended) [The] A method according to claim [47] 51, wherein in said [image sensing unit has a photo-electric conversion device which outputs a signal in accordance with the electromagnetic wave and a grid which absorbs scattered rays from the subject, and wherein said controller] controlling step, the first signal is generated [generates that first signal] so that an irradiation of the electromagnetic wave starts at a timing when a [third] fourth period is elapsed after [said] the controller has received a [third] fourth signal which instructs a start of [photographing, and the third period is the longer] imaging, the fourth period being the longest one of the first, [period and the] second and third period.

56. (Amended) A computer-readable storage medium [wherein said storage medium stores a processing program for executing an image control method, wherein] which stores a program for executing a method adapted to an imaging apparatus including an image sensing unit adapted for sensing an electromagnetic wave image of a subject, the method comprising a step of:

[said method is a control method of an imaging apparatus having a function for irradiating an electromagnetic wave to a subject by an irradiating unit that starts an accumulation of an energy for irradiation after it has received a permission signal which permits the irradiation and sensing the electromagnetic wave reflected by the subject by an image sensing unit, comprising the step of:]

controlling a controller to generate a first signal for permitting an irradiating unit to irradiate an electromagnetic wave and a second signal for initializing the image sensing unit,

so as to overlap a first period and a second period,

wherein the first period is an interval between a timing when [a] the first signal[, which permits said irradiating unit to irradiate the electromagnetic wave,] is outputted from [said] the controller and a timing when the electromagnetic wave is outputted from [said] the irradiating unit, and

wherein the second period is an interval between a timing when [a] the second signal[, which initializes said image sensing unit,] is outputted from [said] the controller and a timing when [an] the initialization of [said] the image sensing unit has been completed.

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